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(54) SYSTEM AND METHOD OF ESTIMATING EARLIEST ARRIVAL OF CDMA FORWARD LINK SIGNALS

(57) Abstract:

A system and method for estimating the earliest signal arrival in a wireless communication system, is presented herein. In accordance with an embodiment of the invention, the system includes a base station that transmits a plurality of pilot signals and a mobile station configured to receive a plurality of signals corresponding to one of the transmitted pilot signals. The mobile station includes a receiver containing a searcher correlating mechanism and at least one finger correlating mechanism. The mobile station receiver detects the arrival times and energy levels of the received signals and constructs a searcher histogram and a finger histogram representing an arrival time distribution of samples corresponding to the received signals. The mobile station then generates a delay index for each of the estimated early signal arrivals and forwards the delay indices to the base station or a position determination entity to select the minimum delay index corresponding to the earliest signal arrival.